Andrew Stankevich's Contest, Warmup - 1008

Regular Words

Time Limit: 2 Seconds Memory Limit: 32768 KB

Consider words of length *3n* over alphabet *{A, B, C}* . Denote the number of occurences of *A* in a word *a* as *A(a)* , analogously let the number of occurences of *B* be denoted as *B(a)*, and the number of occurenced of *C* as *C(a)* .

Let us call the word *w* **regular** if the following conditions are satisfied:

- *A(w)=B(w)=C(w)* ;
- if *c* is a prefix of *w* , then *A(c)>= B(c) >= C(c)* .

For example, if *n = 2* there are 5 regular words: *AABBCC* , *AABCBC* , *ABABCC* , *ABACBC* and *ABCABC* .

Regular words in some sense generalize regular brackets sequences (if we consider two-letter alphabet and put similar conditions on regular words, they represent regular brackets sequences).

Given *n* , find the number of regular words.

Input

There are mutiple cases in the input file.

Each case contains *n* (*0 <= n <= 60*).

There is an empty line after each case.

Output

Output the number of regular words of length *3n* .

There should be am empty line after each case.

Sample Input

```
2

3
```

Sample Output

```
5

42
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